



## Department of Energy

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08 NOV 2000

DOE-0121-01

Mr. James A. Saric, Remedial Project Manager  
U.S. Environmental Protection Agency  
Region V-SRF-5J  
77 West Jackson Boulevard  
Chicago, Illinois 60604-3590

Mr. Tom Schneider, Project Manager  
Ohio Environmental Protection Agency  
401 East 5<sup>th</sup> Street  
Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

**TRANSMITTAL OF RESPONSES TO U.S. ENVIRONMENTAL PROTECTION AGENCY AND  
OHIO ENVIRONMENTAL PROTECTION AGENCY COMMENTS AND THE REVISED  
PROJECT SPECIFIC PLAN FOR PADDYS RUN AND ADJACENT AREAS REAL-TIME SCAN**

- References: 1) Letter, T. Schneider to J. Reising, "PSP for Paddys Run and Adjacent Areas Real-Time Scan," dated September 26, 2000
- 2) Letter, J. Saric to J. Reising, "Paddy's Run and Adjacent Areas Real-Time Scan," dated October 12, 2000

Enclosed for your approval are responses to the U.S. Environmental Protection Agency (U.S. EPA) and Ohio Environmental Protection Agency (OEPA) comments and the revised Project Specific Plan (PSP) for Paddys Run and Adjacent Areas Real-Time Scan.

If you have any questions regarding these documents or need further information, please contact Robert Janke at (513) 648-3124.

Sincerely,

Johnny W. Reising  
Fernald Remedial Action  
Project Manager

FEMP:R.J. Janke

Enclosure

Mr. James A. Saric  
Mr. Tom Schneider

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cc w/enclosure:

R. J. Janke, OH/FEMP  
G. Jablonowski, USEPA-V, SRF-5J.  
T. Schneider, OEPA-Dayton (three copies of enclosure)  
F. Bell, ATSDR  
M. Schupe, HSI GeoTrans  
R. Vandegrift, ODH  
F. Hodge, Tetra Tech  
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A. Tanner, OH/FEMP  
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J. Chiou, Fluor Fernald, Inc./52-0  
T. Hagen, Fluor Fernald, Inc./65-2  
J. Harmon, Fluor Fernald, Inc./90  
S. Hinnefeld, Fluor Fernald, Inc./31  
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T. Walsh, Fluor Fernald, Inc./65-2  
ECDC, Fluor Fernald, Inc./52-7

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**RESPONSES TO U.S. ENVIRONMENTAL PROTECTION AGENCY  
TECHNICAL REVIEW COMMENTS ON THE  
DRAFT PROJECT SPECIFIC PLAN FOR PADDYS RUN AND  
ADJACENT AREAS REAL-TIME SCAN  
(20300-PSP-0008, REVISION B)**

**FERNALD ENVIRONMENTAL MANAGEMENT PROJECT**

**SPECIFIC COMMENT**

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: Table 1-1

Page #: Not Applicable (NA)

Line #: NA

Original Specific Comment #: 1

Comment: The sample identification in Table 1-1 are presented in the form WP-SS-21. However, the corresponding sample identifications in Figures 1-2 and 1-3 and in Appendix A are presented in the form 123276. Therefore, it is difficult to correlate the collection locations of the samples and the above-final remediation levels of uranium, radium, and thorium listed in Table 1-1 with locations shown in figures and the actual radioisotope concentrations in the appendix without using the northing and easting coordinates. Also Figure 2-1 used the WP-SS-21 type sample identifications, but Figure 2-2 uses both types of identifications. Therefore, the sample identification style should be made consistent and corrected throughout the document.

Response: Agree. Table 1-1 will be modified to include both the sample IDs and the boring ID so the table and figures will correlate.

Action: Revise Table 1-1.



total uranium, 3) identify visible surface debris within the stream corridor, and 4) conduct precertification scans when appropriate. These objectives will be accomplished through real-time scanning, as described in Section 2.0, and walkdowns within the stream corridor. Due to the dynamic deposition in the streambed, data collection in portions of the stream corridor may require reiterative scanning since most of the tributaries (i.e., Pilot Plant Drainage Ditch) and bordering FEMP property are not currently certified."

The following text will be modified in Section 1.3.

"The scope of this PSP is limited to predesign and precertification FRL scanning activities within the Paddys Run streambed, from the northern FEMP boundary to the southern FEMP boundary, including the accessible adjacent areas. This includes scanning, confirmation measurements and, if necessary, hot spot delineation. The real-time scanning is anticipated to begin in February 2001. Completion of scanning is contingent on funding, available manpower, seasonal water flows in the streambed, certification of bounding areas and other site priorities.

The first priority will be initial scanning in the two adjacent oxbow areas. Following the oxbow scanning, the Paddys Run stream corridor that traverses the uncertified areas will be spot checked to assess possible radiological contamination. Based on the oxbow and spot check scanning results, portions of the stream corridor may be identified for remediation.

Precertification surface scanning will be conducted when remediation (if necessary) in the stream corridor is complete and the north, east and west boundaries are certified. The first area available for precertification will be the stretch of Paddys Run that traverses the Area 1 and Area 8 certified areas. As the north, east, and west boundaries become certified, the PSP will be used to precertify the remaining Paddys Run corridor."

Action: Revise Sections 1.2 and 1.3 to more clearly state the role of spot checking within the Paddys Run streambed and precertification of the area (see text above).

Commenting Organization: Ohio EPA

Commentator: OFFO

Section #: 1.0

Pg. #:

Line #:

Code: C

Original Comment #: 4

Comment: The Plan does not specify a time-frame to accomplish the field activities. An explanation of the anticipated duration of the scanning should be added. A listing of contingencies that might delay the completion of the scanning could be included if a commitment to a completion date can not be made.

Response: Comment noted. The real-time scanning is anticipated to begin in February 2001. Completion of scanning is contingent on funding, available manpower, seasonal water flows in the streambed, certification of the bounding areas and other site priorities.

Action: Revise Section 1.3 to include the anticipated start date along with contingencies that might delay the completion of the scanning.

Commenting Organization: Ohio EPA

Commentator: DSW

Section #: 2.0

Pg. #: 2-1

Line #: 21-25

Code: C

Original Comment #: 5

**Comment:** It appears as though the two pieces of equipment listed may not be appropriate for soil moisture measurements in Paddys Run and its riparian areas. The Troxler 3440 series is designed for compaction control for road building. The Zeltex KJE-100 is designed for use in manufacturing. A more appropriate measurement instrument would be designed for soil moisture such as the Mesa Systems Trime-FM. Please send procedures EQT-32 and EQT-29 with appropriate explanations of how these are suitable for soil moisture in Paddys Run and its riparian areas.

**Response:** The Troxler 3440 series and the Zeltex KJE-100 moisture measurement instruments are suitable for conducting soil measurements in Paddys Run and its riparian areas. The two moisture tools are not media dependent; use of the two moisture tools is not limited to the applications (or industries) for which they were originally developed.

The Troxler 3440 series nuclear moisture meter, although designed for compaction control for road building, has been successfully used for soil moisture measurements at the FEMP for over 3 years in surface vegetated soil, subsurface clay, and sandy soil. Tests to compare Troxler moisture measurements to laboratory moisture measurements of physical samples collected of the same soil type have shown them to be comparable. If the Troxler is used in the Paddys Run streambed, the measurements will be made only on the streambed soils; as always care will be taken to avoid taking moisture measurements on the rocks, which would result in incorrect moisture measurements. Use of the Troxler in the oxbow area vegetated soils is not expected to be a problem; care will again be exercised to avoid rocks. Use of the Troxler in the Paddys Run area will be limited because of its heavy weight (approximately 40 lbs). Since all equipment will have to be carried into the oxbow area and along the Paddys Run streambed, the lighter Zeltex moisture meter will be used almost exclusively.

The Zeltex Infrared Moisture Meter, although designed for the manufacturing industry, has been used successfully for soil moisture measurements at the FEMP for over a year. Tests to compare Zeltex moisture measurements to laboratory moisture measurements of physical samples collected of the same soil type have shown them to be comparable. The Zeltex moisture meter will most likely be used in the Paddys Run streambed and oxbow areas because of its lightweight and portability. As always care will be taken to avoid taking moisture measurements on the rocks, which would result in incorrect measurements.

The Zeltex can be calibrated to the media being measured for moisture. DOE calibrates the Zeltex to obvious soil types such as vegetated surface soil, subsurface clay, and sand. The multiple calibrations allow it to be used on a variety of soil types. The Zeltex is calibrated to soil type by collecting a sample of the subject soil, drying it, then hydrating it to saturation. A Zeltex moisture measurement is taken of the soil in this saturated condition. The saturated soil is then incrementally dried, with Zeltex moisture measurements made at each increment. This yields a calibration curve, which is then loaded into a channel in the Zeltex meter. This channel is then used whenever this soil type is encountered. If more than one soil type is encountered in any project area (such as oxbow vegetated surface soil and Paddys Run streambed sand), both types of soil will be sampled and a calibration curve determined for each type of soil. The curves are then

loaded into separate channels in the meter. DOE has confidence this tool will more than adequately meet the moisture measurement needs in the Paddys Run streambed and oxbow areas.

An Internet search for the Mesa Systems Trime-FM system referenced in your comment, showed the system to be interesting and of potential future use at the FEMP. Articles researched appear to have verified the Trime-FM system measurement accuracy by comparing its results to other types of moisture meters including nuclear moisture measurement systems, similar to the Troxler used at the FEMP. This in effect supports the use of a nuclear moisture measurement system, like the Troxler, for moisture measurements on soil media as well as its intended use in the road construction industry. At Fernald we have gone one step further and calibrated the Troxler and the Zeltex meters to laboratory derived moisture measurements. At the current time DOE has no plans to buy the Trime-FM system, although this will be considered if one of the moisture measurement tools currently in use at the FEMP need to be replaced at a later date. The current systems work well, and the additional expense to procure a Trim-FM system, develop the operating procedure, and perform personnel training is not justified at this time.

The Troxler/Laboratory and Zeltex/Laboratory comparisons as well as the two operating procedures are available upon further request, if the commentator has further questions.

Action: None.

Commenting Organization: Ohio EPA

Commentator: DSW

Section #: 2.6

Pg. #: 2-8

Line #: 9

Code: DSW

Original Comment #: 6

Comment: Because of the extremely variable nature of the Paddys Run stream bed, 2 soil moisture measurements per acre is insufficient. Soil moisture should be measured in the immediate area of the radiological measurements. Also see earlier comment regarding soil moisture measurement equipment.

Response: The project specific plan (PSP) calls for the use of either the sodium iodide (NaI) systems or the high-purity germanium detector (HPGe) systems to characterize the streambed and the oxbow areas. Where the NaI systems are used, two moisture measurements per acre was proposed in the PSP; where the HPGe systems are used, one moisture measurement per radiological measurement was proposed in the PSP. The comment obviously refers to the number of moisture measurements used with the NaI systems, not the HPGe systems.

It is agreed, that two moisture measurements per acre when using the NaI systems may not adequately reflect the moisture in the streambed, however in the oxbow areas, two moisture measurements per acre will be sufficient. Unlike the HPGe systems, one moisture measurement per NaI measurement is not feasible; the NaI systems collect a spectrum every 4 seconds. One moisture measurement per NaI measurement would result in literally thousands of moisture measurements; this is because the NaI systems are moving systems that collect a radiological measurement approximately every 9 feet. This level of moisture control would be excessive.

Action: DOE proposes to take four moisture measurements per acre when the NaI system is used. If the moisture measurements show less than 10 percent variability, the 1 acre will be scanned as one NaI "run". Only one moisture measurement can be applied to each NaI "run". If more than a 10 percent variability is shown between the four moisture measurements, the run area will be reduced in size to ensure that only the area with less than 10 percent variability in moisture is included in the run.